

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

Claims

1. An improved fuze for a submunition grenade designed to be launched from a cargo projectile; said cargo projectile comprising a fuze, a charge and a casing; the improved fuze comprising a fuze housing; a
5 threaded firing pin oriented coaxially with the submunition grenade, and threadedly engageable to a threaded hole in a weighted insert that is able to reciprocate within the fuze housing; said firing pin having a pointed tip; said firing pin being able to rotatably reciprocate between a forward
10 position and a retracted position by rotation of said firing pin with respect to said weighted insert along said threadedly engaged screw threads; a slider slidably moveable in a substantially radial plane tangential to the axis of the firing pin, between a safe position and an armed
15 position; said slider having a cavity therein for engaging the pointed tip of the firing pin when said slider is in said safe position and said firing pin is in said forward position; said slider having a stab detonator attached to an inner end of said slider, such that when said slider is in said safe position and said pointed tip engages said cavity, said stab detonator is
20 securely held within said housing, and when said firing pin is in said retracted position and said slider is slid into said armed position, the stab detonator is brought into alignment with said firing pin, for detonation thereby after an impact or jolt; said slider further comprising a time delay detonator ignition system
25 for delayed ignition of the stab detonator and a spin activated swivel mounted striker for activating the time delay detonator ignition mechanism, such that spin of the submunition grenade applies a centrifugal force on the firing pin and causes retraction of the firing
30 pin along threadedly engaged screw threads into said weighted insert, retracting said tip out of said cavity, cocking the firing pin; such that spin of the submunition grenade further applies a centrifugal force on

said slider urging it from said safe position into said armed position, bringing said stab detonator into alignment with said firing pin; said fuze further comprising a fully mechanical inertial releasable safety apparatus for preventing swiveling of said swivel mounted striker, to prevention initiation of said time delay detonator ignition system.

2. An improved fuze for a submunition grenade as claimed in claim 1, wherein the time delay detonator ignition system comprises a pyrotechnic combustion charge and a percussion cap, such that said percussion cap is triggerable by an impact resulting from swiveling of said swivel mounted striker, and said percussion cap actuates said pyrotechnic combustion charge for ignition of said stab detonator.
3. An improved fuze for a submunition grenade as claimed in claim 1, wherein:
 - (a) release of said swivel mounted striker whilst said slider is in said safe position triggers said time delay detonator ignition system, resulting in ignition of said stab detonator after said time delay whilst said stab detonator is held securely in said housing, disarming said submunition grenade thereby, rendering it relatively harmless;
 - (b) when said firing pin retracts and the slider is moved into the armed position bringing the stab detonator into alignment with the firing pin and arming the submunition grenade thereby, in absence of the firing pin initiating the stab detonator, the time delay detonator ignition system initiates the stab detonator after elapsing of the time delay;
 - (c) wherein spin of the submunition grenade causes an inertial force to be applied to the firing pin, resulting in retraction of the firing pin out of the cavity, cocking the firing pin; the spin of the submunition grenade further applies an inertial force onto the slider urging it from safe position into said armed position, bringing said stab detonator into alignment with said firing pin.
4. An improved fuze for a submunition grenade as claimed in claim 1, wherein the inertial force includes a centrifugal force.

5. An improved fuze for a submunition grenade as claimed in claim 1, wherein the inertial force includes a sudden jolt resulting from launching of said cargo projectile.
- 5 6. An improved fuze for a submunition grenade as claimed in claim 1, wherein the inertial force includes a sudden jolt resulting from said submunition grenade being expelled from said cargo projectile.
- 10 7. An improved fuze for a submunition grenade as claimed in any of claims 1 to 6, wherein the fully mechanical inertially releasable safety apparatus comprises a small block that is wedgeable into the fuze housing and, when wedged therein, the small block prevents the swiveling of the swivel mounted striker, such that upon the submunition grenade being ejected from the cargo projectile, spin of the submunition grenade results in a centrifugal force that causes detachment of said block from the fuze housing; said detachment of
- 15 the block allows the swivel mounted striker to swivel into a position such that it strikes said percussion cap and activates the time delay detonator ignition system.
- 20 8. An improved fuze for a submunition grenade as claimed in any of claims 1 to 6, wherein the fully mechanical inertially releasable safety apparatus comprises a flat pin and a resilient retaining means; said flat pin being able to reciprocate between an inner position and an outer position, said resilient retaining means for urging said flat pin towards said inner position, such that upon expulsion of said submunition grenade from said cargo projectile, inertial forces causes the flat pin to
- 25 slide out of the fuze housing, allowing the slider assembly to slide out of the fuze housing assuming said outer position and releasing said swivel mounted striker.
- 30 9. An improved fuze for a submunition grenade as claimed in claim 8, wherein said inertial forces include centrifugal forces resulting from spinning of the submunition grenade.

10. An improved fuze for a submunition grenade as claimed in claim 8, wherein said inertial forces include a sudden jolt resulting from an unraveling of a drag means attached to said flat pin on expulsion of the submunition grenade from the cargo projectile.
- 5 11. An improved fuze for a submunition grenade as claimed in any of claims 1 to 6, wherein said fully mechanical inertially releasable safety apparatus comprises a spring-pin resiliently mounted within a cylinder and retractable there into, said spring pin and said cylinder being aligned with longitudinal axis of said submunition grenade.
- 10 12. A submunition grenade including an improved fuze as described in any of claims 1 to 11.
13. An improved fuze substantially as described and illustrated herein.

15

Agent for the Applicant

32-03 -speo.doc